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22850	7590	04/16/2009	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.			YANG, JIE	
1940 DUKE STREET				
ALEXANDRIA, VA 22314				
			ART UNIT	PAPER NUMBER
			1793	
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			04/16/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/528,263	<b>Applicant(s)</b> NAGAO ET AL.	
	<b>Examiner</b> JIE YANG	<b>Art Unit</b> 1793	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,6 and 8-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6 and 8-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/17/2008</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Document 10/528,263 in the IDS marked 11/17/2008 has been crossed out because it is the instant application. Claims 1, 8, 13, and 18 have been amended, claims 1-3, 5, 6, and 8-18 are pending in application.

### ***Status of the Precious Rejection***

The previous rejections of claims 1 and 13 under 35 U.S.C. 112 first paragraph is withdrawn in view of the amendment and remark filed on 1/21/2009.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5, 6, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda et al (US 6,372,056 B1, thereafter US'056).

US'056 is applied to the claims 1, 3, 5, 6, and 18 for the same reason as stated in the previous office actions dated 9/27/2007, 3/27/2008, and 10/17/2008.

Regarding the amended composition ranges: Si 0.1-0.85wt% and P: 0.01 or less as recited in the instant claims 1 and 18, US'056 teaches a spring steel which is superior in both shaving

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properties and green drawing properties (Abstract of US'056).

The comparison of the composition ranges of the instant invention and the composition ranges of US'056 (Col.4, lines 54-67 and claim 2 of US'056) are listed in following table. All the composition ranges disclosed by US'056 overlap the composition ranges of the instant invention, which is a prima facie case of obviousness. SEE MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to select the claimed compositions C, Si, Mn, P, S, and optional adding Cr, Ni, Ti, and Nb from the composition disclosed by US'056, because US'056 discloses the same utility throughout the disclosed ranges.

Regarding the limitation of "consisting essentially of" in the instant claims 1 and 13, the transitional language "consisting essentially of" will be constructed as equivalent to "comprising." See, e.g., PPG, 156 F.3d at 1355, 48 USPQ2d at 1355. If an applicant contends that additional steps or materials in the prior art are excluded by the recitation of "consisting essentially of," applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention. In re De Lajarte, 337 F.2d 870, 143 USPQ 256 (CCPA 1964). See MPEP 2111.03. In the instant case, the applicant has not shown

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that the introduction of the additional binder material would materially change the characteristics of applicant's invention.

Element	From instant Claim 1 (in wt%)	US'056 (in wt%)	Overlapping range (in wt%)
C	0.6-1	0.38-0.85	0.6-0.85
Si	0.1-0.85	0.25-2.1	0.25-0.85
Mn	0.3-1.0	0.2-1.0	0.3-1.0
P	0.01 or less	0.035 or less	0.01 or less
S	0.02 or less	0.035 or less	0.02 or less
	Claim 3		
Cr	0.3 or less (option)	0.65-1.5 (option)	--
Ni	0.3 or less (option)	0.2-0.5 (option)	0.2-0.3
	Claim 4		
Nb,V,Ti,Tf,Zr	At least one: 0.1 or less	Ti: .02-.09; Nb:.02-.5	Ti:0.02-0.09; Nb:0.02-0.1
Fe	Balance	Balance	Balance

Claims 1 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minami et al (NPL: Drawing high-grade steel wire rods without heat treatment" wire journal international, Vol. 16, XP008063056, pp. 236-247, Sept. 1983, thereafter, NPL-1).

NPL-1 is applied to the claims 1 and 18 for the same reason as stated in the previous office action dated 10/17/2008.

Regarding the amended composition ranges: Si 0.1-0.85wt% and P: 0.01 or less as recited in the instant claims 1 and 18, NPL-1 teaches the Cr-V steel having Si 0.23wt%, which is within the 0.1-0.85wt% range as recited in the instant claims. NPL-1 further teaches adding 0.015wt% P, which is close to the up limit of 0.01wt% as recited in the instant claims. Therefore, it would have been obvious to one of ordinary skill in the art at

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the time of the invention was made to select the claimed compositions C, Si, Mn, P, S, and Fe from the composition disclosed by NPL-1, because NPL-1 discloses the same utility throughout the disclosed ranges. MPEP 2144.05 I.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over US'056 in view of Tsukamoto (US 5,156,692, thereafter US'692).

US'056 in view of US'692 is applied to the claim 2 for the same reason as stated in the previous office actions dated 3/27/2008, 9/27/2007, and 10/17/2008.

Claims 8, 10-13, and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US'056 in view of Bae et al (US 6,264,759 B1, thereafter US'759).

US'056 in view of US'759 is applied to the claims 8, 10-13, and 15-17 for the same reason as stated in the previous office action dated 10/17/2008.

Regarding the amended composition ranges: Si 0.1-0.85wt% and P: 0.01 or less as recited in the instant claims, which is the same limitation as claimed in the instant claims 1. The Examiner's position can refer to the rejection for the instant claim 1.

Claims 9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over US'056 in view of US'759, and further in view of US'692.

US'056 in view of US'759, and further in view of US'692 is applied to the claims 9 and 14 for the same reason as stated in the previous office action dated 10/17/2008.

### ***Response to Arguments***

Applicant's arguments filed on 1/21/2009 with respect to claims 1-3, 5, 6, and 8-18 have been fully considered but they are not persuasive. The arguments respectively related to the amended features, the Examiner's position has stated as above.

Applicant's arguments are summarized as follows:

1, Regarding the rejection for claims 1 and 13 under 35 USC 112, first paragraph for the lack of support for amending "containing/comprising" to "consisting essentially of" in the response filed July 28, 2008, it would be illogical to conclude that Applicants were not in possession of the core embodiment of the claimed invention (e.g. containing C, Si, Mn, P, and S as essential elements), but were in possession of an open-ended version of the core embodiment that may or may not include other elements;

2, Regarding rejection for claims 1 and 18 under USC 103 (a) as being unpatentable over Minami et al, Applicants submit that the Examiner's assertions are incorrect because 1) Fig.2 and 4 of Minami show that a wire rod is cooled by one-step cooling due to the fact that the cooling rate in loop conveyor 8 is constant with no change during the course of cooling; 2) The tensile strength of Minami et al 100kgf/mm<sup>2</sup>

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(here should be 110kgf/mm<sup>2</sup>-noted by the Examiner) in table 4 and 125kgf/mm<sup>2</sup> in table 6 are outside the calculated range; 3) the steel of Minami having overlapping elemental content ranges with those claimed do not meet all 4 mechanical property limitations (i.e.,  $TS_{Av}$ ,  $TS_{\sigma}$ ,  $RA_{av}$ ,  $RA_{\sigma}$ ).

3, Regarding prior arts: US'056, US'759, and US'692, the previous office action has ignored the arguments concerning the criticality of C and/or its critical combination with the other four elements. The C, Si, and P composition in the sample of US'056 (table 1 of US'056) are not within the composition ranges as recited in the instant claims. Without any motivation to consider C amount above 0.57wt%, Si amount below 1.47 and P amount below 0.01wt%. Furthermore, Kuroda also lacks motivation to consider the combination of all three of these claimed amount (i.e. C, Si, and P). None of US'056, US'759, and US'692, or any combination thereof, discloses or suggests a hot-rolled wire rod as claimed by Applicants and having the critical mass% ranges of components, as well as satisfying all 4 mechanical property limitations.

Responses are as follows:

Regarding argument 1, it is persuasive for the Applicant's changing the terms of "containing" and/or "comprising" in the original claim 1 to "consisting essentially of". However, the transitional language "consisting essentially of" will be constructed as equivalent to "comprising." See, e.g., PPG, 156 F.3d at 1355, 48 USPQ2d at 1355. If an applicant contends that additional steps or materials in the prior art are excluded by the recitation of "consisting essentially of," applicant has the burden of showing that the introduction of additional steps or components would materially change the



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characteristics of applicant's invention. In re De Lajarte, 337 F.2d 870, 143 USPQ 256 (CCPA 1964). See MPEP 2111.03.

Regarding the argument 2, the Examiner disagrees with the Applicants' argument, firstly, Figs.2 and 4 of NPL-1 are heat patterns of the steel, which clearly show the cooling rate changes. The Applicants should explain why "loop conveyor 8 is constant" will lead to one-step cooling conclusion; secondly, as discussed above, NPL-1 teaches a similar hot-rolled wire rod with the composition ranges overlapping or close to the claimed alloy. NPL-1 further teaches the properties of the steel can be adjusted by the process, for example, the Cr-V steel having Ts: 125kgf/mm<sup>2</sup>, Ra: 42% by conventional process; and having Ts: 110kgf/mm<sup>2</sup>, Ra: 53% by NPL-1's process. Because the Applicants did not consider the processes factors during the calculation using the equations (1)-(4) in the instant claims, therefore, there is no comparison base to the NPL-1 measured properties related to the NPL-1 calculated properties as assumed by the Applicants.

Regarding the argument 3, the Examiner notes the general teaching for the composition ranges of US'056's alloy overlaps all the composition ranges of the instant invention, which is a prima facie case of obviousness. SEE MPEP 2144.05 I. US'056 teaches a rolled spring steel superior in workability with tensile strength less or equal to 1200 MPa (Abstract and Fig. 1 of US'056) and reduction area from 30% to 70%, which overlaps the claimed tensile strength range (912-1300(±30) MPa) and reduction area (more than 35%). The Examiner notes that the Applicants have not provided any convinced data to prove the criticality in the instant remark or the remark filed on

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7/28/2008 over the rejection based on US'056 or combined with US'759 and/or US'692.

The detail rejections and discussions can refer to the previous office actions dated

9/27/2007, 3/27/2008, and 10/17/2008. For overcoming a prima facie case of

obviousness by showing improved performance in a range that is within overlap with a

range disclosed in the prior art, the applicant must "show that the [claimed] range is

critical, generally by showing that the claimed range achieves unexpected results

relative to the prior art range," *In re wood*, 9 F.2<sup>nd</sup> 1575, 1578, 16 USPQ 2d 1934,

1936 (Fed. Cir, 1990).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-270-1884.

The examiner can normally be reached on M-F, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JY

/Roy King/

Supervisory Patent Examiner, Art Unit 1793